Claims

[c1] An exterior vehicle mirror system comprising:

a base having a mounting portion for mounting the mirror system to a vehicle;

a reflective element assembly for providing an operator of the vehicle with a rearward view;

a connection pivotally mounting the reflective element assembly to the base; and

a reinforcing element aligned with the connection to distribute at least one of stresses and forces imposed on the vehicle mirror system to the base bracket along a stress path to enhance the strength of the connection.

[c2] The exterior vehicle mirror system of claim 1, wherein the reinforcing element is integrally molded with at least one of the base and the reflective element assembly in cooperative relationship with the connection.

[c3] The exterior vehicle mirror system of claim 2, wherein the reinforcing element is made of a material having a higher strength-to-weight ratio than the material comprising at least one of the base and the reflective element.

[c4] The exterior vehicle mirror system of claim 3, wherein the reinforcing element surrounds at least a portion of the connection.

[c5] The exterior vehicle mirror system of claim 2, wherein the reinforcing element further comprises a surface, and the surface is in abutment with the base to resist deflection of the base due to forces imposed on the reflective element assembly.

[c6] The exterior vehicle mirror system of claim 5, wherein the reinforcing element comprises a first reinforcing element associated with the base and a second reinforcing element associated with the reflective element assembly.

[c7] The exterior vehicle mirror system of claim 6, wherein the first reinforcing element is vertically spaced from the second reinforcing element.

[c8] The exterior vehicle mirror system of claim 7, wherein the first reinforcing element comprises a plate having a first end positioned beneath the connection and the second reinforcing element.

[c9] The exterior vehicle mirror system of claim 8, wherein the first reinforcing element has a second end extending from the first end and in abutment with the mounting portion of the base.

[c10] The exterior vehicle mirror system of claim 9, wherein the first reinforcing element is L-shaped between the first end and the second end.

[c11] The exterior vehicle mirror system of claim 10, wherein the L-shape of the first reinforcing element transfers at least one of forces, stresses, and moments within the vehicle mirror system from beneath the connection at the first end to the mounting portion adjacent to the second end thereof.

[c12] The exterior vehicle mirror system of claim 11, wherein the reflective element assembly further comprises a recess which receives the second reinforcing element.

[c13] The exterior vehicle mirror system of claim 12, wherein the recess has a lower surface which forms a portion of the connection, and the second reinforcing element abuts the lower surface.

[c14] The exterior vehicle mirror system of claim 13, wherein the recess and the second reinforcing element each comprise a coaxially-aligned recess forming a portion of the connection.

[c15] The exterior vehicle mirror system of claim 14, wherein the second reinforcing element includes a vertically-extending flange.

[c16] The exterior vehicle mirror system of claim 15, wherein the vertically extending flange is in alignment with at least one axis of the reflective element assembly.

[c17] The exterior vehicle mirror system of claim 16, wherein the second reinforcing element further comprises an annular portion surrounding the connection.

[c18] The exterior vehicle mirror system of claim 17, wherein a portion of the annular portion is integrally formed with the vertically-extending flange, whereby the vertically-extending flange is capable of transferring at least one of forces, stresses, and moments through the connection via the annular portion.

[c19] The exterior vehicle mirror system of claim 18, wherein at least one of the first and second reinforcing elements is made of metal.

[c20] The exterior vehicle mirror system of claim 1, wherein the reinforcing element is made of a material having a higher strength-to-weight ratio than the material comprising at least one of the base and the reflective element.

[c21] The exterior vehicle mirror system of claim 1, wherein the reinforcing element surrounds at least a portion of the connection.

[c22] The exterior vehicle mirror system of claim 1, wherein the reinforcing element further comprises a surface, and the surface is in abutment with the base to resist deflection of the base due to forces imposed on the reflective element assembly.

[c23] The exterior vehicle mirror system of claim 1, wherein the reinforcing element comprises a first reinforcing element associated with the base and a second reinforcing element associated with the reflective element assembly.

[c24] The exterior vehicle mirror system of claim 23, wherein the first reinforcing element is vertically spaced from the second reinforcing element.

[c25] The exterior vehicle mirror system of claim 24, wherein the first reinforcing element comprises a plate having a first end positioned beneath the connection and the second reinforcing element.

[c26] The exterior vehicle mirror system of claim 25, wherein the first reinforcing element has a second end extending from the first end and in abutment with the mounting portion of the base.

[c27] The exterior vehicle mirror system of claim 26, wherein the first reinforcing element is L-shaped between the first end and the second end.

[c28] The exterior vehicle mirror system of claim 27, wherein the L-shape of the first reinforcing element transfers at least one of forces, stresses, and moments within the vehicle mirror system from beneath the connection at the first end to the mounting portion adjacent to the second end thereof.

[c29] The exterior vehicle mirror system of claim 28, wherein the reflective

element further comprises a recess which receives the second reinforcing element.

[c30] The exterior vehicle mirror system of claim 29, wherein the recess has a lower surface which forms a portion of the connection, and the second reinforcing element abuts the lower surface.

[c31] The exterior vehicle mirror system of claim 30, wherein the recess and the second reinforcing element each comprise a coaxially-aligned recess forming a portion of the connection.

[c32] The exterior vehicle mirror system of claim 31, wherein the second reinforcing element includes a vertically-extending flange.

[c33] The exterior vehicle mirror system of claim 32, wherein the vertically extending flange is in alignment with at least one axis of the reflective element assembly.

[c34] The exterior vehicle mirror system of claim 33, wherein the second reinforcing element further comprises an annular portion surrounding the connection.

[c35] The exterior vehicle mirror system of claim 34, wherein a portion of the annular portion is integrally formed with the vertically-extending flange, whereby the vertically-extending flange is capable of transferring at least one of forces, stresses, and moments through the connection via the annular portion.

[c36] The exterior vehicle mirror system of claim 35, wherein at least one of the first and second reinforcing elements is made of metal.

[c37] The exterior vehicle mirror system of claim 23, wherein the first

reinforcing element comprises a plate having a first end positioned beneath the connection and the second reinforcing element.

[c38] The exterior vehicle mirror system of claim 23, wherein the first reinforcing element has a second end extending from the first end and in abutment with the mounting portion of the base.

[c39] The exterior vehicle mirror system of claim 23, wherein the first reinforcing element is L-shaped between the first end and the second end.

[c40] The exterior vehicle mirror system of claim 39, wherein the L-shape of the first reinforcing element transfers at least one of forces, stresses, and moments within the vehicle mirror system from beneath the connection at the first end to the mounting portion adjacent to the second end thereof.

[c41] The exterior vehicle mirror system of claim 23, wherein the reflective element assembly further comprises a recess which receives the second reinforcing element.

[c42] The exterior vehicle mirror system of claim 41, wherein the recess has a lower surface which forms a portion of the connection, and the second reinforcing element abuts the lower surface.

[c43] The exterior vehicle mirror system of claim 41, wherein the recess and the second reinforcing element each comprise a coaxially-aligned recess forming a portion of the connection.

[c44] The exterior vehicle mirror system of claim 23, wherein the second reinforcing element includes a vertically-extending flange.

[c45] The exterior vehicle mirror system of claim 44, wherein the vertically

extending flange is in alignment with at least one axis of the reflective element assembly.

[c46] The exterior vehicle mirror system of claim 23, wherein the second reinforcing element further comprises an annular portion surrounding the connection.

[c47] The exterior vehicle mirror system of claim 46, wherein a portion of the annular portion is integrally formed with the vertically-extending flange, whereby the vertically-extending flange is capable of transferring at least one of forces, stresses, and moments through the connection via the annular portion.

[c48] The exterior vehicle mirror system of claim 23, wherein at least one of the first and second reinforcing elements is made of metal.